With courtesy of Neri Oxman

Objet Materials

The Power behind your 3D Printer

The World's Only 3D Printing Technology with **107** MATERIALS
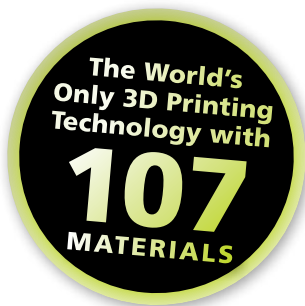
With a choice of over 100 materials, including 90 Digital Materials, Objet 3D printing solutions enable highly realistic visual and functional simulation for Rapid Prototyping purposes.

Objet materials are capable of simulating properties ranging from varying grades of rubber all the way to clear transparent glass and engineering plastics combining high toughness and high temperature resistance.

Using Objet materials, designers, manufacturers and engineers can create highly accurate, finely detailed models and parts to answer the Rapid Prototyping needs of virtually any industry.

Stratasys
FOR A 3D WORLD™

Meeting your Precise Application Requirements

Stratasys provides a wide variety of materials offering transparent, colored, opaque, flexible, rigid, high temperature and high toughness properties. These materials are designed to answer the visual and verificational requirements of designers and engineers in every industry.

Unrivalled productivity

Based upon proprietary, acrylic-based photopolymer technology, Objet's materials produce fully-cured models that can be handled immediately after printing, with no need for lengthy post-processing.

Models and parts made from Objet materials feature smooth surfaces and fine details. They can readily absorb paint and can be easily machined, drilled, chrome-plated, glued or used as a mold.

Ease of use

Objet Support material, used in combination with any Objet material, enables the design and production of models with an unlimited array of complex geometries, including overhangs and undercuts. With no hard edges to scrape or chemical baths to use, the gel-like support is easily and quickly removed with a water-jet.

Environment

Objet materials are environmentally safe, being REACH compliant. They are delivered in fully sealed 1kg, 2kg or 3.6kg cartridges that are simple to use, change over and replace.

Your Choice of 90 Digital Materials!

The Objet Connex™ 3D printing system offers users the unique ability to fabricate 90 different Digital Materials, with up to 14 different materials within any single printed part.

Digital Materials are composite materials created by simultaneously jetting two different Objet materials. The two are combined in specific concentrations and structures to provide unique mechanical properties and to provide a closer look, feel and function of the desired end-product.

- Simulate rubber – Print a whole range of different Shore A values including Shore 27, 40, 50, 60, 70, 85 and 95, to simulate various elastomers and rubber products.
- Simulate toughness – Print various rigid materials ranging from standard plastics to the toughness and temperature resistance of ABS or engineering-plastics.
- Create shades and patterns – Print various shades of rigid opaque materials and mix transparent and rigid opaque materials to create shades, dots, grids and patterns.

Objet Digital Materials™

- **Black Rubber like material**
- Elongation at break 47.7%
- Shore A 61

- DM_1
- **Rigid**
- Izod Impact 22-35 J/m
- Color: Gray40

- **White Rigid material**
- Izod Impact 21-30 J/m
- Tensile Strength 50-60 MPa

- DM_3
- **Rigid**
- Izod Impact 21-40 J/m
- Color: Gray60

- DM_2
- **Flexible**
- Elongation at break 50-60%
- Shore A 85
- Color: Black

All part based on digital combinations of Objet materials.

Objet Material Families

Simulating Engineering Plastics

High Temperature

ABS-like

Simulating Standard Plastics

Transparent

Rigid opaque

Polypropylene-like

Rubber-like

Medical*

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*   See the Objet website & medical brochure for more information on materials for medical, hearing aids, dental and biocompatible applications.

**   This material have received 4 medical approvals: Cytotoxicity, Irritation, Sensitization and USP Plastic Class VI. It is the responsibility of the device manufacturer to determine the suitability of all the component parts and materials used in its finished products.

***   Objet Bio-Compatible material is suitable for applications requiring prolonged skin contact of over 30 days and short term mucosal-membrane contact of up to 24 hours. The material has five medical approvals according to the harmonized standard ISO 10993-1: Cytotoxicity, Genotoxicity, Delayed Type Hypersensitivity, Irritation and USP Plastic Class VI. It is the responsibility of the device manufacturer to determine the suitability of all the component parts and materials used in its finished products

Simulate Standard Plastics – Transparent

Objet FullCure720™ is Objet original multi-purpose transparent material for standard plastics simulation.

Objet VeroClear™ is a rigid, colorless material featuring great dimensional stability for general purpose, fine detail model building and visual simulation of transparent thermoplastic such as PMMA.

Simulate Transparent Shades and Patterns
Selected Digital Materials –

Combining Objet transparent and black (rigid and rubber-like) materials enables the creation of different artistic patterns, (Objet DM_dots_7513 and DM_grid_7523), various transparent shades and Shore A values for simulating general purpose and polypropylene-like plastics.

Ideal for:
- Form and fit testing of clear or see-through parts
- Glass, eye-wear, lighting covers and light-cases
- Visualization of liquid flow
- Color dying
- Medical applications
- Artistic and exhibition modeling

Simulate Standard Plastics – Rigid & Opaque

Objet family of rigid opaque materials includes Objet VeroWhitePlus™, Objet VeroGray™, Objet VeroBlue™ and Objet VeroBlackPlus™.

Combining dimensional stability and high-detail visualization, the Objet rigid opaque family is intended for standard plastics simulation and model creations that closely resemble the 'look' of the end product.

Simulate Rigid, Opaque Shades
Selected Digital Materials –

Combining Objet rigid opaque family and Objet rubber-like family of materials.

Ideal for:
- Wide range of fit and form testing
- Moving parts and assembled parts
- Exhibition and sales & marketing models
- Assembly of electronic components
- Objet VeroBlue™ is ideal for silicon molding
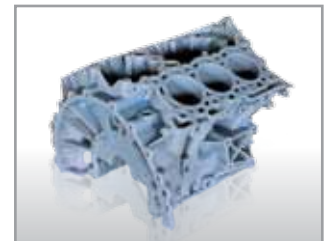
Simulate Standard Plastics – Polypropylene

Objet DurusWhite™ material is ideal for a broad range of applications that require the appearance, flexibility, strength and toughness of Polypropylene. Properties include Izod notched impact of 44 J/m, elongation at break of 44% and flexural modulus of 1026 MPa.

Simulate Polypropylene with Improved Thermal Resistance
Selected Digital Materials –

Combining Objet rigid opaque family with Objet rubber-like materials and combining Objet DurusWhite™ material with Objet rigid opaque family of materials.

Ideal for:
- Reusable containers and packaging
- Flexible, snap-fit applications and living hinges
- Toys, battery cases, laboratory equipment, loudspeakers and automotive components

Simulate Standard Plastics – Rubber

Objet family of rubber-like materials includes Objet TangoGray™, Objet TangoBlack™, ObjetTangoPlus™ and Objet TangoBlackPlus™. The family offers various levels of elastomer characteristics: Shore scale A hardness, elongation at break, tear resistance and tensile strength that make it suitable for a range of applications requiring non-slip or soft surfaces on consumer electronics, medical devices and automotive interiors.

Ideal for:
- Exhibition and communication models
- Rubber surrounds and over-molding
- Soft-touch coatings and non-slip surfaces
- Knobs, grips, pulls, handles, gaskets, seals, hoses, footwear

Simulate 6 Different Shore Values
Selected Digital Materials –

Combining – Objet TangoBlackPlus™ or ObjetTangoPlus™ and Objet VeroWhitePlus™ / VeroClear™ to simulate 6 levels of different Shore Scale A values from Shore 40 to Shore 95, with increasing tensile strength and tear resistance.

Additional Shore values can be created by combining other Objet rubber-like and Objet rigid materials.

Simulate Engineering Plastics – High Temperature*

Objet High Temperature material (RGD525) has exceptional dimensional stability for thermal function testing of static 3-D models.

The material has a heat deflection temperature (HDT) of 63–67 °C (145-153 °F) upon removal from the printer which can be increased to 75-80 °C (167- 176 °F) after thermal post treatment in a programmable oven.

Ideal for:
- Form, fit and thermal functional testing of static parts
- High-definition parts requiring excellent surface quality
- Exhibition modeling under strong lighting conditions
- Post-processing including painting, gluing, or metallization processes
- Models in transit
- Taps, pipes and household appliances
- Hot air and hot water testing

Simulate High Temperature Parts with Improved Functional Performance
Selected Digital Materials –

Combine Objet High Temperature Material with Objet rubber-like materials to produce varying Shore A values, gray shades and rigid functional materials featuring higher temperature resistance. In addition, produce high temperature parts featuring over-molding.

Simulate Engineering Plastics – ABS*

Objet ABS-like digital material (RGD5160 – DM) is fabricated from RGD515 and RGD535. It is designed to simulate ABS engineering plastics by combining high-temperature resistances with high toughness. Objet ABS-like digital material is suitable for any simulated parts that require high-impact resistance and shock-absorption.

Objet ABS-like material has a high impact resistance of 65-80J/m (1.22-1.5 ft lb/inch) and a heat deflection temperature (HDT) of 58-68 °C (136–154 °F) upon removal from the printer. A higher HDT of 82-95°C (179–203 °F) can be achieved after thermal post treatment in a programmable oven using different temperature profiles.

Ideal for:
- Functional prototypes
- Snap-fit parts for high or low temperature usage
- Electrical parts, casings, mobile telephone casings
- Engine parts and covers
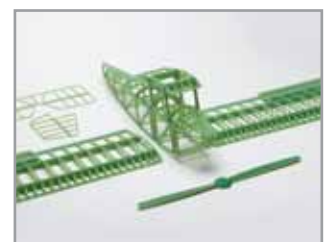
Objet Family of 3D Printing Systems

Objet's advanced 3D printers enable the fast and efficient production of prototypes featuring superior surface quality and ultra-high resolution, down to 16 micron layers.

When combined with Objet's range of over 100 materials, Objet 3D printing systems represent the most practical rapid prototyping solution available - with unmatched versatility for designers, engineers and manufacturers in virtually any industry.

Stratasys has thousands of customers including many of the relevant Fortune 100 companies. Objet systems are in use by world leaders in many industries, such as consumer goods, consumer electronics, defense, automotive, dental, education, architecture, medical & medical devices, hearing aids, animation & entertainment, industrial machinery, jewellery, sporting goods, toys, service bureaus.

Objet Eden Family

Objet Connex Family

Objet Desktop Family

Our Awards

CNBC European Business Magazine Names Objet Among Europe's 25 Most Creative Companies 2010

Plastol 2009 award for recognition of outstanding product: Alaris30

Material of the Year 2009 Honorable Mentions

2008 RedTech USA Emerging Technologies Award For Objet Connex500

Red Dot Design Awards 2008 for Objet Connex500

Frost & Sullivan Award for Product Innovation 2008

Desktop Engineering 2008 for Objet technology

Desktop Engineering 2007 for Digital Materials

NASA Tech Brief 2007 for Objet Connex500

EuroMold Gold Award 2007 for Objet Connex500

Frost & Sullivan 2007 for superior performance in rapid prototyping industry.

Desktop Engineering 2006 for Objet Eden500V

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* For existing customers: operating this material requires the installation of an upgrade kit to Objet 3D Printer. To order contact your Objet Regional Customer Support Manager.

Stratasys Ltd. ("Stratasys") does not guarantee the final release and availability of materials, products and/or features referred to herein. Materials will be released subject to Stratasys sole discretion. Not all released materials are currently available for all platforms/systems. Stratasys will update its website further as releases become available and/or compatible with specific platforms/systems.

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